WHAT IS CLAIMED IS:

1.   A method for distributing data multicast sent
from a source addressed to a receiving terminal which
does not support a multicast function via gateway, the
multicast distribution method comprising the steps of:

        detecting a data request packet sent from
receiving terminal registered in a first network to the
source at a first gateway located on transfer path of
packet between the receiving terminal and the source;

        retaining address of the receiving terminal
included in the data request packet;

        detecting registration message which the
receiving terminal issued to a second network;

        sending a receive state information packet
including information relating address information of
the source and destination address information of data
multicast sent to a second gateway located on transfer
path of packet between the second network and the
source;

        sending from the second gateway a distribu-
tion request packet of multicast data based on received
receive state information packet to the source; and

        converting address information of multicast
data packet sent from the source to address of the
receiving terminal and sending it to the receiving
terminal.

2.   A multicast gateway apparatus which transfers
a data packet multicast sent from a source addressed to

a receiving terminal requesting to receive the data packet, comprising:

a packet receiving part which receives a packet;

a packet discrimination part which discriminates a kind of received packet;

an access terminal management table which retains address of the receiving terminal which is a source of received packet when received packet is an access request packet to the source;

a receiving terminal management table which, when received packet is a registration request packet of receiving terminal, retains address of moving destination of the terminal included in the registration request packet;

a data transfer processing part which, when received packet is a data packet multicast sent, sets address of moving destination of the receiving terminal as a destination address for the received data packet referring to the access management table and the receiving terminal management table; and

a unit for sending data packet with the address set to the receiving terminal.

3.   A multicast gateway apparatus according to claim 2, further comprising:

a unit for receiving the control packet of mobile communication protocol which the receiving terminal sends and receives;

a unit for adding address information of the multicast gateway apparatus to the received control packet of mobile communication protocol and sending the control packet;

a unit for receiving the control packet of mobile communication protocol added with address information of the multicast gateway apparatus;

a unit for retaining address information of the multicast gateway apparatus included in the received control packet of mobile communication protocol added with address information of the multicast gateway apparatus; and

a unit for deleting address information of the multicast gateway apparatus included in the received control packet of mobile communication protocol added with address information of the multicast gateway apparatus.

4.   A multicast gateway apparatus according to claim 2, further comprising:

a unit for monitoring packet sent and received between the receiving terminal and the source; and

a unit for generating a distribution packet which indicates distribution control of data packet multicast sent to the nearest multicast router apparatus based on monitoring result of the monitoring unit.

5.   A multicast gateway apparatus according to

claim 4, wherein the control packet is a packet of group management protocol.

6.   A router apparatus which is provided with a relaying function of data packet multicast sent, comprising:

a packet receiving part which receives packet;

a packet discrimination part which discriminates a kind of received packet;

an access terminal management table which, when received packet is an access request packet to a source of multicast data, retains address of receiving terminal which is a source of the received packet;

a receiving terminal management table which, when received packet is a registration request packet of receiving terminal, retains address of moving destination of the terminal included in the registration request packet;

a data transfer processing part which, when received packet is a data packet multicast sent, sets address of moving destination of the receiving terminal as a destination address for the received data packet referring to the access management table and the receiving terminal management table; and

a unit for sending data packet with the address set to the receiving terminal.

7.   A router apparatus according to claim 6, further comprising:

a unit for receiving the control packet of mobile communication protocol which the mobile terminal sends and receives;

a unit for adding address information of the router apparatus to the received control packet of mobile communication protocol and sending the control packet;

a unit for receiving the control packet of mobile communication protocol added with address information of the router apparatus;

a unit for retaining address information of the router apparatus included in the received control packet of mobile communication protocol added with address information of the router apparatus; and

a unit for deleting address information of the router apparatus included in the received control packet of mobile communication protocol added with address information of the router apparatus and sending the control packet.

8.   A router apparatus according to claim 6, further comprising:

a unit for monitoring packet sent and received between the receiving terminal and the source; and

a unit for generating a control packet which indicates distribution control of data packet multicast sent to another router apparatus existing on network based on monitoring result of the monitoring unit.

9.   A router apparatus according to claim 8,
wherein the control packet is a packet of multicast
path control protocol.

10.   An agent apparatus in a network to which a
mobile communication protocol is applied provided with
a function defined by the mobile communication
protocol, comprising:

        a packet receiving part which receives
packet;

        a packet discrimination part which
discriminates a kind of received packet;

        an access terminal management table which,
when received packet is an access request packet to a
source of multicast data, retains address of receiving
terminal which is a source of the received packet;

        a receiving terminal management table which,
when received packet is a registration request packet
of receiving terminal, retains address of moving
destination of the terminal included in the
registration request packet;

        a data transfer processing part which, when
received packet is a data packet multicast sent, sets
address of moving destination of the receiving terminal
as a destination address for the received data packet
referring to the access management table and the
receiving terminal management table; and

        a unit for sending data packet with the
address set to the receiving terminal.

11.   An agent apparatus according to claim 10, further comprising:

a unit for adding address information of the agent apparatus to the control packet of mobile communication protocol and sending the control packet;

a unit for receiving the control packet of mobile communication protocol added with address information of the agent apparatus;

a unit for retaining address information of the agent apparatus included in the received control packet of mobile communication protocol added with address information of the agent apparatus; and

a unit for deleting address information of the agent apparatus included in the received control packet of mobile communication protocol added with address information of the agent apparatus and sending the control packet.

12.   A service system which distributes information to a receiving terminal which is not provided with a receiving function of multicast data using multicast communication, comprising:

a distribution server which multicast sends data packet including information to provide;

a home agent located in a home network to which the receiving terminal belongs;

a foreign agent located in a foreign network to which the receiving terminal can move;

a first multicast gateway apparatus located

on a communication path between the home agent and the distribution server;

a second multicast gateway apparatus located on a communication path between the foreign agent and the distribution server;

wherein the first and the second multicast gateway apparatuses comprise a unit for converting data packet multicast sent to unicast data, and

the first multicast gateway apparatus, on receiving a registration message which the receiving terminal issued for the foreign agent, transfers address information of the distribution server and home address information of the receiving terminal to the second gateway,

the second gateway sends a distribution request packet of multicast data to the distribution server,

and further converts multicast data sent from the distribution server to unicast data and sends the unicast data to the receiving terminal.

13.   A method for providing service which distributes data multicast sent from a distribution server to a receiving terminal which is not provided with a receiving function of multicast data, comprising the steps of:

detecting a data request packet sent from a receiving terminal registered in a first network to the distribution server at a first gateway located on a

transfer path of packet between the receiving terminal
and the distribution server;

retaining address of the receiving terminal
included in the data request packet;

detecting that the receiving terminal moved
to a second network by a registration message which the
receiving terminal issued to the second network;

sending address information of the
distribution server and destination address information
of data to be multicast sent to the second gateway
located on a transfer path of packet between the
receiving terminal after moving to the second network
and the distribution server;

sending a distribution request packet of
multicast data to the distribution server from the
second gateway;

converting destination address information of
multicast data sent from the distribution server to
address of the receiving terminal; and

sending multicast data with the destination
address converted to the receiving terminal.